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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,528	09/03/2004	Stephan Berndanner	02P03551	1092

24252 7590 01/05/2007  
OSRAM SYLVANIA INC  
100 ENDICOTT STREET  
DANVERS, MA 01923

EXAMINER
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HODGES, MATTHEW P

ART UNIT	PAPER NUMBER
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2879

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/506,528

Applicant(s)

BERNDANNER ET AL.

Examiner

Matt P. Hodges

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 9/3/2004.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Inventorship*

In view of the papers filed 5/9/2005, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed by the addition of inventors Leichtfried and Spielmann.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Daemen et al. (US 6,046,544).

Regarding claim 1, Daemen discloses (see figure 1) a short arc discharge lamp including a discharge vessel (1), with two opposed necks, tungsten anode and cathode (2), a gas fill including a noble gas, where the cathode tip contains  $\text{La}_2\text{O}_3$  and  $\text{HfO}_2$ . (Column 5 lines 30-50).

Regarding claims 2-6 and 11-14, Daemen further discloses the use of a tungsten cathode with  $\text{La}_2\text{O}_3$  and  $\text{HfO}_2$  throughout the cathode where the concentrations of the additives with

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respect to tungsten is 2% and 0.1% respectively. Subsequently the molar quantity of  $\text{HfO}_2$  is greater than 2% the molar quantity of  $\text{La}_2\text{O}_3$ .

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US 5,791,767) in view of Daemen et al. (US 6,046,544).

Regarding claim 1, Inoue discloses (see figure 4) a short arc discharge lamp including a discharge vessel, with two opposed necks (15), tungsten anode and cathode (13 and 14), and a gas fill including a noble gas. Inoue does not appear to specify the inclusion of the cathode tip containing  $\text{La}_2\text{O}_3$  and  $\text{HfO}_2$ , however Daemen, in the same field of endeavor, discloses the use of  $\text{La}_2\text{O}_3$  and  $\text{HfO}_2$  included in the cathode tip in order to advantageously improve device reliability and color reproduction. (Column 6 lines 30-47). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the use of  $\text{La}_2\text{O}_3$  and  $\text{HfO}_2$  included in the cathode tip as taught by Daemen into the device as disclosed by Inoue in order to advantageously improve device reliability and color reproduction.

Regarding claims 2-6 and 11-14, Daemen further discloses the optimum concentrations of  $\text{La}_2\text{O}_3$  and  $\text{HfO}_2$  throughout the cathode where the concentrations of the additives with respect

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to tungsten are 2% and 0.1% respectively. Subsequently the molar quantity of  $\text{HfO}_2$  is greater than 2% the molar quantity of  $\text{La}_2\text{O}_3$ .

Regarding claims 7 and 8, Inoue further discloses the gap between the electrodes being 7mm. (Column 4 lines 23-26).

Regarding claim 9, Inoue further discloses the lamp current being in the range of 67 A. (Column 4 lines 29-32).

Regarding claim 10, Inoue in view of Daemen discloses the claimed invention except for the limitation of the current density being between 5 and 200. However, It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Specifically, when the claimed ranges are dependent upon the specifics of claimed composition or structure met by the prior art, then the resultant optimization into a workable device would involve only routine experimentation and is an obvious variation of the prior art. In this instance, the dimensions of the cathode would be dependent upon the characteristics of the cathode depending upon cathode composition and separation from the anode. Given these variables, a suitable structure would be devised that lead to an optimum current density. Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to device a cathode structure with the claimed current density, since discovering an optimum value of a result variable is considered within the skills of the art.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Setzer (US 6,486,602) discloses the use of coated cathodes in arc tubes.

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Kai et al. (US 6,084,351) discloses the electronic details of cathode spacing and current density.

Schneider et al. (US 5,081,396) discloses the use of  $\text{La}_2\text{O}_3$  in cathodes of discharge tubes.

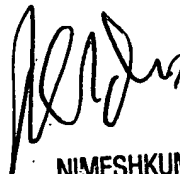
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt P Hodges whose telephone number is (571) 272-2454. The examiner can normally be reached on 7:30 AM to 4:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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